

04-21-00

(Pat. No. 799 Pub. 802)

FORM 4-1

4-3

Practitioner's Docket No. 00164

PATENT

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example "Proposed Class 2, subclass 129." M.P.E.P. § 601, 7th ed.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of

Inventor(s): Paul Entwistle

WARNING: 37 C.F.R. § 1.41(a)(1) points out:

(a) A patent is applied for in the name or names of the actual inventor or inventors.

"(1) The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.63, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(d) is filed supplying or changing the name or names of the inventor or inventors."

For (title): Memory Database Creation System For Encrypted Programme Material

CERTIFICATION UNDER 37 C.F.R. § 1.10*

(Express Mail label number is mandatory.)

(Express Mail certification is optional.)

I hereby certify that this New Application Transmittal and the documents referred to as attached therein are being deposited with the United States Postal Service on this date 4-20-00 in an envelope as "Express Mail Post Office to Addressee," mailing Label Number EL197551576US, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Amy Miles

(type or print name of person mailing paper)

Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. § 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

*WARNING: Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

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04/20/00

JCS71 U.S. PTO

JCS25 U.S. PTO

09/553011

04/20/00

00553011-042000

1. Type of Application

This new application is for a(n)

(check one applicable item below)

☒ Original (nonprovisional)

☐ Design

☐ Plant

WARNING: Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. § 371(c)(4), unless the International Application is being filed as a divisional, continuation or continuation-in-part application.

WARNING: Do not use this transmittal for the filing of a provisional application.

NOTE: If one of the following 3 items apply, then complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED and a NOTIFICATION IN PARENT APPLICATION OF THE FILING OF THIS CONTINUATION APPLICATION.

☐ Divisional.

☐ Continuation.

☐ Continuation-in-part (C-I-P).

2. Benefit of Prior U.S. Application(s) (35 U.S.C. §§ 119(e), 120, or 121)

NOTE: A nonprovisional application may claim an invention disclosed in one or more prior filed copending nonprovisional applications or copending international applications designating the United States of America. In order for a nonprovisional application to claim the benefit of a prior filed copending nonprovisional application or copending international application designating the United States of America, each prior application must name as an inventor at least one inventor named in the later filed nonprovisional application and disclose the named inventor's invention claimed in at least one claim of the later filed nonprovisional application in the manner provided by the first paragraph of 35 U.S.C. § 112. Each prior application must also be:

(i) An international application entitled to a filing date in accordance with PCT Article 11 and designating the United States of America; or

(ii) Complete as set forth in § 1.51(b); or

(iii) Entitled to a filing date as set forth in § 1.53(b) or § 1.53(d) and include the basic filing fee set forth in § 1.16; or

(iv) Entitled to a filing date as set forth in § 1.53(b) and have paid therein the processing and retention fee set forth in § 1.21(f) within the time period set forth in § 1.53(f).

37 C.F.R. § 1.78(a)(1).

NOTE: If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., or benefit of a prior provisional application is claimed, then check the following item and complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

WARNING: If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. §§ 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. §§ 120, 121 or 365(c). (35 U.S.C. § 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. §§ 119, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

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WARNING: When the last day of pendency of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, any nonprovisional application claiming benefit of the provisional application must be filed prior to the Saturday, Sunday, or Federal holiday within the District of Columbia. See 37 C.F.R. § 1.78(a)(3).

☒ The new application being transmitted claims the benefit of prior ^{G.B.} application(s). Enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

3. Papers Enclosed

A. Required for filing date under 37 C.F.R. § 1.53(b) (Regular) or 37 C.F.R. § 1.153 (Design) Application

8 Pages of specification

3 Pages of claims

1 Sheets of drawing

WARNING: DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. Only one copy is required or desired. For comments on proposed then-new 37 C.F.R. § 1.84, see Notice of March 9, 1988 (1990 O.G. 57-62).

NOTE: "Identifying indicia, if provided, should include the application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawing a minimum distance of 1.5 cm. (5/8 inch) down from the top of the page . . ." 37 C.F.R. § 1.84(c).

(complete the following, if applicable)

☐ The enclosed drawing(s) are photograph(s), and there is also attached a "PETITION TO ACCEPT PHOTOGRAPH(S) AS DRAWING(S)." 37 C.F.R. § 1.84(b).

☐ formal

☒ informal

B. Other Papers Enclosed

 Pages of declaration and power of attorney

1 Pages of abstract

 Other

4. Additional papers enclosed

☐ Amendment to claims

☐ Cancel in this applications claims _____ before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)

☐ Add the claims shown on the attached amendment. (Claims added have been numbered consecutively following the highest numbered original claims.)

☒ Preliminary Amendment

☐ Information Disclosure Statement (37 C.F.R. § 1.98)

☐ Form PTO-1449 (PTO/SB/08A and 08B)

☐ Citations

- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
- ☐ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
- ☐ Special Comments
- ☐ Other

5. Declaration or oath (including power of attorney)

NOTE: A newly executed declaration is not required in a continuation or divisional application provided that the prior nonprovisional application contained a declaration as required, the application being filed is by all or fewer than all the inventors named in the prior application, there is no new matter in the application being filed, and a copy of the executed declaration filed in the prior application (showing the signature or an indication thereon that it was signed) is submitted. The copy must be accompanied by a statement requesting deletion of the names of person(s) who are not inventors of the application being filed. If the declaration in the prior application was filed under § 1.47, then a copy of that declaration must be filed accompanied by a copy of the decision granting § 1.47 status or, if a nonsigning person under § 1.47 has subsequently joined in a prior application, then a copy of the subsequently executed declaration must be filed. See 37 C.F.R. §§ 1.63(d)(1)–(3).

NOTE: A declaration filed to complete an application must be executed, identify the specification to which it is directed, identify each inventor by full name including family name and at least one given name, without abbreviation together with any other given name or initial, and the residence, post office address and country or citizenship of each inventor, and state whether the inventor is a sole or joint inventor. 37 C.F.R. § 1.63(a)(1)–(4).

NOTE: "The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.62, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(f) is filed supplying or changing the name or names of the inventor or inventors." 37 C.F.R. § 1.41(a)(1).

- ☐ Enclosed

Executed by

(check all applicable boxes)

- ☐ Inventor(s).
- ☐ legal representative of inventor(s).
37 C.F.R. §§ 1.42 or 1.43.
- ☐ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.

- ☐ This is the petition required by 37 C.F.R. § 1.47 and the statement required by 37 C.F.R. § 1.47 is also attached. See Item 13 below for fee.

☒ Not Enclosed.

NOTE: Where the filing is a completion in the U.S. of an International Application or where the completion of the U.S. application contains subject matter in addition to the International Application, the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

- ☐ Application is made by a person authorized under 37 C.F.R. § 1.41(c) on behalf of all the above named inventor(s).

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9. Certified Copy

Certified copy(ies) of application(s)

G.B.

9909362.7

23 April 1999

Country	Appln. No.	Filed
Country	Appln. No.	Filed
Country	Appln. No.	Filed

from which priority is claimed

☐ Is (are) attached.☒ will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 C.F.R. § 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. § 120 is itself entitled to priority from a prior foreign application, then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

10. Fee Calculation (37 C.F.R. § 1.16)A. ☒ Regular application

CLAIMS AS FILED			
Number filed	Number Extra	Rate	Basic Fee 37 C.F.R. § 1.16(a) \$760.00
Total Claims (37 C.F.R. § 1.16(c))	11 - 20 =	×	\$ 18.00
Independent Claims (37 C.F.R. § 1.16(b))	2 - 3 =	×	\$ 78.00
Multiple dependent claim(s), If any (37 C.F.R. § 1.16(d))		+	\$260.00

☐ Amendment cancelling extra claims is enclosed.☐ Amendment deleting multiple-dependencies is enclosed.☐ Fee for extra claims is not being paid at this time.

NOTE: If the fees for extra claims are not paid on filing they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 C.F.R. § 1.16(d).

Filing Fee Calculation

\$ 690.00

B. ☐ Design application

(\$310.00—37 C.F.R. § 1.16(f))

Filing Fee Calculation

\$

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- C. ☐ Plant application
(\$480.00—37 C.F.R. § 1.16(g))

Filing fee calculation

\$ _____

11. Small Entity Statement(s)

- ☐ Statement(s) that this is a filing by a small entity under 37 C.F.R. § 1.9 and 1.27 is (are) attached.

WARNING: "Status as a small entity must be specifically established in each application or patent in which the status is available and desired. Status as a small entity in one application or patent does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established. The refiling of an application under § 1.53 as a continuation, division, or continuation-in-part (including a continued prosecution application under § 1.53(d)), or the filing of a reissue application requires a new determination as to continued entitlement to small entity status for the continuing or reissue application. A nonprovisional application claiming benefit under 35 U.S.C. § 119(e), 120, 121, or 365(c) of a prior application, or a reissue application may rely on a statement filed in the prior application or in the patent if the nonprovisional application or the reissue application includes a reference to the statement in the prior application or in the patent or includes a copy of the statement in the prior application or in the patent and status as a small entity is still proper and desired. The payment of the small entity basic statutory filing fee will be treated as such a reference for purposes of this section." 37 C.F.R. § 1.28(a)(2).

WARNING: "Small entity status must not be established when the person or persons signing the . . . statement can unequivocally make the required self-certification." M.P.E.P., § 509.03, 6th ed., rev. 2, July 1996 (emphasis added).

(complete the following, if applicable)

- ☐ Status as a small entity was claimed in prior application
_____ / _____, filed on _____, from which benefit
is being claimed for this application under:

35 U.S.C. § ☐ 119(e),
☐ 120,
☐ 121,
☐ 365(c),

and which status as a small entity is still proper and desired.

- ☐ A copy of the statement in the prior application is included.

Filing Fee Calculation (50% of A, B or C above)

\$ _____

NOTE: Any excess of the full fee paid will be refunded if small entity status is established and a refund request are filed within 2 months of the date of timely payment of a full fee. The two-month period is not extendable under § 1.136. 37 C.F.R. § 1.28(a).

12. Request for International-Type Search (37 C.F.R. § 1.104(d))

(complete, if applicable)

- ☐ Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

13. Fee Payment Being Made at This Time

☐ Not Enclosed

☐ No filing fee is to be paid at this time.

(This and the surcharge required by 37 C.F.R. § 1.16(e) can be paid subsequently.)

☒ Enclosed

☒ Filing fee \$ 690.00

☐ Recording assignment
(\$40.00; 37 C.F.R. § 1.21(h))
(See attached "COVER SHEET FOR
ASSIGNMENT ACCOMPANYING NEW
APPLICATION".) \$ _____

☐ Petition fee for filing by other than all the
inventors or person on behalf of the inventor
where inventor refused to sign or cannot be
reached \$ _____
(\$130.00; 37 C.F.R. §§ 1.47 and 1.17(i))

☐ For processing an application with a
specification in
a non-English language \$ _____
(\$130.00; 37 C.F.R. §§ 1.52(d) and 1.17(k))

☐ Processing and retention fee \$ _____
(\$130.00; 37 C.F.R. §§ 1.53(d) and 1.21(i))

☐ Fee for International-type search report \$ _____
(\$40.00; 37 C.F.R. § 1.21(e))

NOTE: 37 C.F.R. § 1.21(f) establishes a fee for processing and retaining any application that is abandoned for failing to complete the application pursuant to 37 C.F.R. § 1.53(f) and this, as well as the changes to 37 C.F.R. §§ 1.53 and 1.78(e)(1), indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid, or the processing and retention fee of § 1.21(f) must be paid, within 1 year from notification under § 53(f).

Total fees enclosed \$ 690.00

14. Method of Payment of Fees

☒ Check in the amount of \$ 690.00

☐ Charge Account No. _____ In the amount of \$ _____

A duplicate of this transmittal is attached.

NOTE: Fees should be itemized in such a manner that it is clear for which purpose the fees are paid. 37 C.F.R. § 1.22(b).

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15. Authorization to Charge Additional Fees

WARNING: If no fees are to be paid on filing, the following items should not be completed.

WARNING: Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

☒ The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. 08-1500:

☒ 37 C.F.R. § 1.16(a), (f) or (g) (filing fees)

☒ 37 C.F.R. § 1.16(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

☒ 37 C.F.R. § 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)

☒ 37 C.F.R. § 1.17(a)(1)-(5) (extension fees pursuant to § 1.136(a)).

☐ 37 C.F.R. § 1.17 (application processing fees)

NOTE: "... A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).

☐ 37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

NOTE: 37 C.F.R. § 1.28(b) requires "Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying, . . . the issue fee. . . ." From the wording of 37 C.F.R. § 1.28(b), (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

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000260-1105560

16. Instructions as to Overpayment

NOTE: "... Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

☒ Credit Account No. 08-1500
☐ Refund

Reg. No. 19,224

Tel. No. (918) 587-2000

Customer No.

Paul H. Johnson

SIGNATURE OF PRACTITIONER

Paul H. Johnson
(type or print name of attorney)

228 West 17th Place

P.O. Address

Tulsa, OK 74119

(New Application Transmittal [4-1]—page 10 of 11)

X~~X~~ Incorporation by reference of added pages

(check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional or C-I-P application) and complete and attach the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED)

- ☒ Plus Added Pages for New Application Transmittal Where Benefit of Prior ~~U.S.~~ ~~XXX~~ G.B. Application(s) Claimed

Number of pages added 1

- ☐ Plus Added Pages for Papers Referred to in Item 4 Above

Number of pages added _____

- ☐ Plus added pages deleting names of inventor(s) named in prior application(s) who is/are no longer inventor(s) of the subject matter claimed in this application.

Number of pages added _____

- ☐ Plus "Assignment Cover Letter Accompanying New Application"

Number of pages added _____

- ☐ **Statement Where No Further Pages Added**

(if no further pages form a part of this Transmittal, then end this Transmittal with this page and check the following item)

- ☐ This transmittal ends with this page.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: Unknown)
)
Filing Date: Unknown)
)
Priority Date: 23 April 1999)
)
Applicant: ENTWISTLE, Paul)
)
For: MEMORY DATABASE CREATION)
SYSTEM FOR ENCRYPTED)
PROGRAMME MATERIAL)

PRELIMINARY AMENDMENT

Assistant Commissioner For Patents
Box: New Application
Washington, D.C. 20231

Dear Sir:

This is a preliminary amendment to the enclosed application entitled "Memory Database Creation System For Encrypted Programme Material". Please amend the specification as follows:

Before the first paragraph on page 1, please insert

--CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority to British Application No. 9909362.7 filed 23 April 1999.

BACKGROUND OF THE INVENTION--;

On page 2 before line 11 insert the following heading:

--SUMMARY OF THE INVENTION--;

Page 5 before line 13 insert the following:

--BRIEF DESCRIPTION OF THE DRAWINGS--

Page 5 before line 16 insert the following:

000210-1102556

--DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT--;

Page 8 after line 6 add the following:

--While the invention has been described with a certain degree of particularity, it is manifest that many changes may be made in the details of construction and the arrangement of components without departing from the spirit and scope of this disclosure. It is understood that the invention is not limited to the embodiments set forth herein for purposes of exemplification, but is to be limited only by the scope of the attached claim or claims, including the full range of equivalency to which each element.

--

Please amend the claims as follows:

Rewrite claim 1 as follows:

1. (Amended) A [system including a receiver for] method that employs a broadcast data receiver [said receiver including a means for identifying] that identifies and [storing] stores broadcast programme material in a memory [means] and [allowing] allows subsequent selected retrieval of material from the memory, [characterised in that said system includes the steps of] comprising the steps of:

receiving the broadcast programme material and, if the material is in an encrypted format, processing the material [using some or all of the steps of data de-scrambling and/or data decrypting and/or data stream parsing] to generate a number of location identifiers for respective portions of the material, which identifiers are held in a database for reference; and

upon selection of [an identifier or] identifiers, retrieval of [a] respective [portions or] portions of material from [the] said memory [means].

Claim 2, line 1, delete "system" and insert --method--; line 3 delete "the" both occurrence and insert --said--;

Claim 3, line 1, delete "system" and insert --method--;

Claim 4, line 1, delete "system" and insert --method--; delete "the" and insert --said--; line 2 delete "the same" and insert --it--;

Claim 5, line 1, delete "system" and insert --method--;

Claim 6, line 5, after "of" insert --;--; line 6 after "data" first occurrence delete "," and insert --;--; line 7, after "material" delete "," and insert --;--; and delete "and"; line 8, after "database" delete "," and insert --;--; and line 9, delete "the" both occurrences and insert --said--;

Claim 7, line 2, after "and" insert --a--; delete "means" and insert --apparatus--; delete --described--; line 3, delete "the" and insert --said--; delete "which receives the broadcast"; line 4, delete "programme material from a remote source";

Claim 8, line 2, delete "transmitted" and "the"; line 3, before "receiver" insert --said broadcast data--; after "includes" insert --a system--; delete "means"; after "data," insert --including the step of--; line 4, delete "video and/or" and insert --an--; delete "television set or monitor screen"; line 5, delete "and speakers" and insert --speaker or speakers--; delete "in connection with the data receiver";

Claim 9, delete the entire claim;

09531-04-000

10. A method according to claim 1 in which said step of processing said material to generate a number of location identifiers includes de-scrambling the material.
11. A method according to claim 1 in which said step of processing said material to generate a number of location identifiers includes decrypting the material.
12. A method according to claim 1 in which said step of processing said material to generate a number of location identifiers includes data stream parsing the material.

Please delete the Abstract and add the new Abstract as follows:

ABSTRACT OF THE DISCLOSURE

A memory database creation system for encrypted program material in which received encrypted material is first descrambled or decrypted and parsed to allow the generation of location identifiers for portions of the material. Once parsed, the location identifiers are stored in a database in a receiver and the material is again encrypted at the receiver prior to storage in memory. Typically, the steps of the method and system are performed at one instant thereby preventing unauthorized access to the material when it is in a descrambled or decrypted form. –

REMARKS

The application should now be in condition for examination, which is respectfully requested.

Respectfully Submitted

HEAD, JOHNSON & KACHIGIAN

Dated: 20 April 2000

BY: Paul H. Johnson
Paul H. Johnson, Reg. No. 19,224
228 West 17th Place
Tulsa, Oklahoma 74119
(918) 584-4187
Attorneys for Applicant

Memory Database Creation System for Encrypted Programme Material

The invention which is the subject of this application relates to the ability to compile a database of information such as, but not exclusively, broadcast programme material, in a memory and to the generation and provision of identification means to allow the retrieval of the material and to the ability to include a means for processing the material as it is received to allow the generation of the identification means prior to storage.

It is known in the transmission of broadcast material, which can be any or any combination of video and/or audio data and/or auxiliary data that the same is received at a premises by a broadcast data receiver and that the received data can be decoded and stored in a hard disk drive or other form of random access memory for subsequent selective retrieval which may be provided integral with the receiver or connected thereto. However with the ability to store the material in memory there is the accompanying demand to be able to identify and retrieve the data readily and review the material to allow a selection to be made of a portion of the stored material or the required part of the material to be identified. In order to allow the efficient retrieval of material it is necessary to be able to accurately identify segments of the material at the time of storage so that for example, for video material, the frames of video can be identified and the particular form of frame and coding method used can be identified with respect to each frame for subsequent retrieval and generation of a video display.

The use of the memory is at present complicated by the reception of broadcast programme material which is transmitted in a scrambled or encrypted format to prevent unauthorised viewing of the same. The material can be descrambled by, for example, the payment of an

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appropriate sum to authorise the descrambling however it is desired that encrypted material should also be able to be stored in a memory and an identification database created. A known solution is to record the broadcast encrypted material, read it from the memory and then parse it to obtain the appropriate start identifier for the material. This solution has the benefit of not requiring the construction of a database of location identifiers but does have the disadvantage of requiring for retrieval, that all of the material data has to be read from the memory at a high rate until the start identifier is located as this is the only reference identification.

The aim of the present invention is to provide apparatus and a method whereby the material stored in the memory is identified with respect to location identifiers held in a database to allow the retrieval of the material and in particular to allow material which may be in an encrypted form when received to be identified and stored while at the same time ensuring the security of the same in storage.

In a first aspect of the invention there is provided a system including a receiver for broadcast data said receiver including a means for identifying and storing broadcast programme material in a memory means and allowing subsequent selected retrieval of material from the memory, characterised in that said system includes the steps of receiving the broadcast programme material and, if the material is in an encrypted format, processing the material using some or all of the steps of data de-scrambling and/or data decrypting and/or data stream parsing to generate a number of location identifiers for respective portions of the material, which identifiers are held in a database for reference and upon selection of an identifier or identifiers, retrieval of a respective portion or portions of material from the memory means.

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Thus the system allows for the identification and storage of encrypted broadcast programme material in a memory means and subsequent selected retrieval of the material from the memory, with the system typically including the steps of receiving the broadcast programme material and, if the material is an encrypted format, processing the same, typically using the steps of descrambling or decrypting and stream parsing to be able to generate a number of location identifiers for the material which are held in a database for reference in the retrieval of the memory from the memory means. Typically the material which is referred to in this specification is digital data which can be any of video, audio and or auxiliary data and which, after reception at the broadcast data receiver can be decoded, and if necessary reordered and combined to generate for viewing or listening identifiable programmes, teletext, Electronic Programme Guides or the like.

In a preferred embodiment the encrypted material undergoes a further processing step of copy protection so that when the material is stored in the memory it is protected against unauthorised copying which is of course one of the reasons for the initial encrypting of the data and so the material is held in a secure state in the memory but can be identified and retrieved.

Preferably the processing steps for the encrypted material should be performed as one process so as to prevent unauthorised access to the material when in a descrambled form.

If the broadcast programme material is not encrypted the same is received and identified for storage in the memory but need not pass through at least the processing steps of descrambling and copy protection.

In one embodiment the database of location identifiers which is generated in relation to the encrypted material may also be encrypted to ensure security of the material.

In a further aspect of the invention there is provided a method of generating a database index of the location of specified features of video and/or audio data material relating to a broadcast programme held in a memory device, said material received by a broadcast data receiver from a remote location in an encrypted form and wherein the method comprises the steps of decrypting the data, parsing the data to generate a plurality of location identifiers for respective portions of the material, and storing the said location identifiers in a database, and locally encrypting the material prior to storage in the memory device.

In one feature of the invention the memory device, and processor means for performing the method described above are located in a data receiver which receives the broadcast programme material from a remote source. Typically the programme material received is transmitted in an encoded digital format and the receiver includes means for decoding the received data and generating video and/or audio displays via a television set or monitor and speakers in connection with the data receiver.

In a yet further aspect of the invention there is provided a broadcast data receiver provided for the reception of broadcast digital data from a remote location, the decoding of the data and generation of video, audio and/or auxiliary data for viewing and/or listening via a display screen and/or speakers to which the receiver is connected, said broadcast data receiver provided with or connected to a memory means for the storage of video, audio and/or auxiliary material generated from the received data for selective access at a subsequent time and wherein if said data is

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received in an unencrypted form, the data is decoded and stored in the memory means in conjunction with a record of the location identifier for said material to allow subsequent retrieval and if the data is received in an encrypted form the data is decrypted, parsed to generate a plurality of location identifiers for respective portions of the data material, and stored, with the said location identifiers held in a database, and the material is locally encrypted to storage in the memory device.

By allowing for the local encryption of the material so the material can be stored securely at the broadcast data receiver or in associated apparatus and still retrieved at a later time for viewing if the viewer is authorised for the decryption of the material.

A specific embodiment of the invention is now described with reference to the accompanying drawing which illustrates a schematic illustration of the system in one embodiment.

In the example it is desired to store received data material arriving in an encrypted stream 2 relating to a broadcast programme, in a memory 4 in the form of a hard disk drive for subsequent retrieval and the said retrieval may be for all of the material, portions or excerpts of the same and/or it may be required to fast forward or rewind, pause or perform other search functions on the material in storage.

In one embodiment the memory is provided as part of a broadcast data receiver which includes components to allow the reception of digital data broadcast from a remote location via, satellite, cable or terrestrial systems, the decoding of the data and the generation of a video, audio or auxiliary data for display via, for example a television set. The broadcast data receiver can be provided connected to the television set or as an integral part thereof and

equally the memory can be provided as an integral part of the broadcast data receiver, the television set, or can be connected to one or the other.

At certain or all instances the received data can be received in an encrypted form and a database 6 is provided for the memory which allows the storage of location identifiers for the material which are generated before the material is input or recorded onto memory 4.

Thus in accordance with the invention, the received encrypted material 2 is first descrambled or decrypted 8 and then parsed 10 to allow the decision and generation of location identifiers sent to the database 6, which may be in absolute terms or relative to other identifiers, for features in the material data. Some examples of useful features can be, for video material, the start of I,B or P frames, Group Of Picture (GOP) sequences, time codes and/or pictorial temporal references.

Once the location identifiers are generated and stored in the database the material can then be re-encrypted for copy protection 12 prior to the storage of the same in the memory and a memory or disk controller 14 is utilised to generate indexing information for the memory which is stored in the database and allocated against the location identifier for the respective portions of material so that the same can subsequently be found in the memory 4.

Subsequently, when the instant arrives at which some or all of the encrypted material is to be retrieved from the memory, reference to the database 6 can be made to accurately identify and start the supply of the material from the memory from the most relevant or convenient location identifier for the material in response to the retrieval demand. For example if a particular excerpt or portion of the material is to be retrieved, the supply of material could start

from the "I frame with a time code nearest a particular time". The material supply is commenced by parsing the database to find the best matched location identifier in the form of a time code and then reference is made to the database index for that material to identify and access the sector of the disk drive memory where the material is held.

As suggested previously it is of advantage for security reasons to have the decryption, parsing and copy protection integrated as one process to form a material processor and the accompanying Figure illustrates in the shaded area 16 how this can be achieved and thereby prevent unauthorised access to the material when in the decrypted form. A further stage can be the integration of the memory controller 14 into the same unit as the material processor 16 and it allows simplified tracking of the storage sector used for the key features which are extracted and used to form the database.

In one further feature the database 6 information may be locally encrypted to provide another level of security.

The invention therefore provides a relatively fast, efficient access to stored material which can be stored in an encrypted, copy protection form and yet allows the location of the material to be identified with reference to a database index.

With the ability to store programme material (video/audio etc) on hard-disk drives (and similar) it becomes desirable to have truly random access, fast-forward, rewind capabilities. To efficiently random access the stream, it is necessary to be able to physically locate say I,P,B or temporal tagged pictures. This invention relates to the construction of a database mapping particular picture properties to physically addressable units, on the storage device. However, in a broadcast environment, where the programme

material is encrypted, this invention describes an architecture that integrates broadcast descrambling, followed by stream parsing to form the database, followed by local content protection (rescrambling for subsequent storage). The described architecture specifically the order of processing, offers significant efficiency benefits.

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Claims

1. A system including a receiver for broadcast data said receiver including a means for identifying and storing broadcast programme material in a memory means and allowing subsequent selected retrieval of material from the memory, characterised in that said system includes the steps of receiving the broadcast programme material and, if the material is in an encrypted format, processing the material using some or all of the steps of data de-scrambling and/or data decrypting and/or data stream parsing to generate a number of location identifiers for respective portions of the material, which identifiers are held in a database for reference and upon selection of an identifier or identifiers, retrieval of a respective portion or portions of material from the memory means.
2. A system according to claim 1 wherein the encrypted material undergoes a further processing step of copy protection so that when the material is stored in the memory it is protected against unauthorised copying.
3. A system according to claim 1 wherein the processing step for the encrypted material is performed as one process so as to prevent unauthorised access to the material when in a descrambled form.
4. A system according to claim 1 wherein if the broadcast programme material received is not encrypted, the same is received and identified for storage in a memory but need not pass through at least the processing step of descrambling.
5. A system according to claim 1 wherein the database of location identifiers which is generated in relation to the encrypted material is also encrypted to ensure security of the material.

6. A method of generating a database index of the location of specified features of video and/or audio data material relating to a broadcast programme held in a memory device, said material received by a broadcast data receiver from a remote location in an encrypted form and wherein the method comprises the steps of decrypting the data, parsing the data to generate a plurality of location identifiers for respective portions of the material, and storing the said location identifiers in a database, and locally encrypting the material prior to storage in the memory device.

7. A method according to claim 6 wherein the memory device and processing means for performing the method described are located in the broadcast data receiver which receives the broadcast programme material from a remote source.

8. A method according to claim 7 wherein the programme material received is transmitted in an encoded digital format and the receiver includes means for decoding the received data, generating video and/or audio displays via a television set or monitor screen and speakers in connection with the data receiver.

9. A broadcast data receiver provided for the reception of broadcast digital data from a remote location, the decoding of the data and generation of video, audio and/or auxiliary data for viewing and/or listening via a display screen and/or speakers to which the receiver is connected, said broadcast data receiver provided with or connected to a memory means for the storage of video, audio and/or auxiliary material generated from the received data for selective access at a subsequent time and wherein if said data is received in an unencrypted form, the data is decoded and stored in the memory means in conjunction with a record of the location identifier for said material to allow subsequent retrieval and

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if the data is received in an encrypted form the data is decrypted, parsed to generate a plurality of location identifiers for respective portions of the data material, and stored, with the said location identifiers held in a database, and the material is locally encrypted to storage in the memory device.

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ABSTRACT

The invention which is the subject of this application relates to the ability to receive data, typically transmitted from a remote location by a broadcaster and in a digital format. The data which is received is typically provided in an encoded format and at least some of the same may be required to be stored in a memory. Typically the data can be provided in an encrypted format for security purposes and, in order to allow the data which is to be held in the memory to be processed, but still be secure, the method and system allows for the addition of location identifiers for the material in the memory to be generated. Thus, in one embodiment, the received encrypted material is first descrambled or decrypted and parsed to allow the generation of location identifiers for portions of the material. Once parsed, the location identifiers are stored in a database on the receiver and the material is again encrypted locally at the receiver prior to storage in the memory. Typically the steps of the method and system are performed at one instant thereby preventing unauthorised access to the material when it is in a descrambled or decrypted form.

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